



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/738,381	12/16/2003	Andrea Cuppoletti	3560.1	7280
22886	7590	08/03/2006	EXAMINER	
AFFYMETRIX, INC			BAUGHMAN, MOLLY E	
ATTN: CHIEF IP COUNSEL, LEGAL DEPT.			ART UNIT	PAPER NUMBER
3420 CENTRAL EXPRESSWAY				
SANTA CLARA, CA 95051			1637	

DATE MAILED: 08/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/738,381	CUPPOLETTI ET AL.	
	Examiner	Art Unit	
	Molly E. Baughman	1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 1-14 is/are rejected.
- 7) Claim(s) ____ is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date: ____.
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>4/13/06; 9/16/04; 3/17/09</u>	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: ____.

1. *Objections*

The use of the trademark "Genechip" has been noted in this application. The entire trademark should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Fodor et al. (US 5,424,186).

Regarding claims 1-10, Fodor et al. discuss linker molecules provided on a substrate, wherein monomers react with the functional groups on the linker molecules when added to the substrate. A second monomer is contacted with the substrate thereafter, and the process is repeated until the desired chemical sequence is obtained (page 2). The monomers can be amino acids, or nucleic acids, which are used to create oligonucleotides, peptides, etc. (pages 7-9). In another embodiment, linker molecules are also provided with a photocleavable group, wherein the photocleavable group is cleaved via a specific wavelength of

light, enabling the removal of various polymers following completion of their synthesis. The photocleavable group is preferably cleavable at a wavelength different from the protecting group (page 15, lines 55-65).

Regarding claims 11-12, Fodor et al. describe nucleic acid synthesis to generate an array of probes or oligomers of varying lengths (pages 65-67). The oligonucleotides are prepared with linkers, which as described above, can be photo-cleaved and released at a specific wavelength upon activation.

Regarding claims 13-14, the polymer array is created with a linker which comprises a photocleavable group. The linker molecules and monomers are provided with a functional group to which is bound a protective group (pages 15-16). The substrate is contacted with a first monomer having a protecting group, which is subject to removal for preparation of the addition of a second monomer. The protecting group may be removed upon exposure to radiation, electric fields, electric currents, or other activators (page 11). The process is repeated until the substrate includes the desired polymers of desired lengths (page 11-12). The photocleavable group on the linker molecule is preferably cleavable at a wavelength different from the protective group, which enables the removal of various polymers following completion of the synthesis (page 15, lines 55-65).

3. Claims 1-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Lam et al. (US 5,650,489).

Regarding claims 1-10 Lam et al. discuss a bio-oligomer (a peptide, an oligonucleotide, or a chimeric peptide-oligonucleotide) and all possible combinations of monomer subunits attached and synthesized on solid phase supports (page 2, lines 25-37). The synthesized bio-oligomer contains subunits of either amino acids, peptides, nucleosides, or oligonucleotides (page 5, lines 1-17) and is released from the solid phase support (page 5, lines 34-41). The solid support comprise linkers in order to attach a monomer subunit (page 15-16). A second monomer can either attach to another linker, or as in the case of a peptide, a second amino acid can attach to the first via a peptide bond and continue until the peptide is completed (pages 8-9). Cleavable linkers can be used, which are labile until activated or cleaved. For instance, an ultraviolet light sensitive linker (page 16, lines 10-40) is labile until activated by UV light. Lam et al. also discuss the option of using fluorescent labels (fluorescein isothiocyanate (FITC), phycoerythrin (PE), Texas red (TR)) that emit at different wavelengths. In other embodiments, chemiluminecent molecules, or magnetic resonance imaging labels can be used, where the released peptide can be detected visually (page 19 –20).

Regarding claims 11-12, Lam et al. discuss an array of polynucleotides, which have been randomly synthesized on solid supports through a series of coupling events with individual nucleic acids until the desired length of the polynucleotide chain is achieved (page 14, lines 30-67). This array can further comprise selective cleavable linkers, for example, a linker susceptible to an

endonuclease cleavage (page 16, lines 10-40). In another embodiment, a selectively cleavable linker may be employed which is sensitive to UV light (page 16, lines 10-12).

Regarding claims 13-14, Lam et al. discuss a method for synthesizing a peptide, wherein linkers are covalently attached to the solid support prior to coupling with N^α-Boc or N^α-Fmoc or otherwise appropriately protected amino acids (page 15, lines 56-65). The solid phase support can be modified with cleavable linkers that are acid-sensitive, base-sensitive, nucleophilic sensitive, electrophilic sensitive, photosensitive, oxidation sensitive, or reduction sensitive (page 16, lines 1-9). Peptide synthesis is accomplished by attaching an amino acid which is protected, wherein the protecting group is cleaved off and the next protected amino acid is coupled until the desired peptide is produced (page 8-10).

4. No claims are free of the prior art.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Molly E. Baughman whose telephone number is 571-272-4434. The examiner can normally be reached on Monday-Friday 8-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on 571-272-0782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Molly E Baughman
Examiner
Art Unit 1637

MAB 8/1/06

Kenneth R. Horlick
KENNETH R. HORLICK, PH.D
PRIMARY EXAMINER

8/1/06